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PREFABRICATED HOUSING CONSTRUCTION IN USSR MRETS DIFFICULTIES

Numbers in parentheses refer to the sources listed at the end.

Construction of prefabricated houses in the USSR is growing steadily. In 1948, the Ministry of Construction Materials Industry USSR tripled the prewar production level and exceeded the 1947 production level by 50 percent (2).

In 1949, house-building combines of three ministries only are to produce 2 million square meters of housing. Considerable improvements have been made in the design and quality of prefabricated houses. The type of prefabricated house has advanced from a simple timber structure to an assembled-framework building, and then to a paneled-framework building. The latter type of house is delivered as a complete unit, with plumbing fixtures, factory-made stoves, and materials for interior finishing.

Present Shortcomings

Enterprises of more than ten ministries and departments are engaged in the production of wooden prefabricated houses. During a one-year period, they built houses of 45 different types. However, 23 types of individual houses produced by various ministries are only slight variations of two- and threeroom houses, and 13 types represent variations of am eight-apartment house. Little attention has been given to the selection of house types for the housebuilding industry, and obsolete types are still used by some house-building enterprises (1).

Entire settlements have been built of completely identical houses. This not only has a very monotonous effect, but also makes it impossible to offer satisfactory living accommodations to families of different sizes. The production of houses of a uniform type, without considering practical requirements in various regions of the country, often makes it necessary to rebuild the houses

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at their destination. It has been necessary to change plumbing installations, stoves, and sometimes to provide additional heating facilities, because climatic conditions had not been considered in the installation of heating systems. All this increases building costs and prolongs building periods (2). The majority of the bouses built by industry are suitable only for climatic conditions in the central part of the European USSR. However, these houses are sent to all regions of the Soviet Union, including the North, the Urals, and Siberia, where such buildings are unfit for use.

A large number of house types were developed by different organizations, working independently of each other, which resulted in a multitude of types of basic construction parameters. Enterprises of the construction materials industry have built houses with roces of heights of 2.57, 2.59, 2.72, and 2.74 meters; plants of the Ministry of Construction of Heavy Industry Enterprises built roces with heights of 2.70, 2.78 and 2.80 meters; and the roces of houses built by the timber and paper industry have heights of 2.80, 2.91 and 3 meters. This makes it impossible to interchange parts and to standardize finishing and facing materials.

The house-building industry should produce not individual houses, but series consisting of three to five houses, which can be assembled and supplemented by elements and parts belonging to a certain type. Series production of prefabricated houses would make it possible to cut down on the number of elements and parts of a certain type. For instance, the Riga House-Building Plant is producing a new type of house, ID-3, which has 130 different parts, and the entire series of three houses requires only 170 parts. At the same time, these houses differ both as to interior planning and outward appearance.

Several plants, including the Molotov Combine of the Ministry of Coal Industry and the Riga House-Building Plant, have taken the first steps to master the production of house series. In May 1947 the Technical Council of the Ministry of Construction of Heavy Industry Enterprises passed a resolution that series production of new model houses was to begin in 1948. However, house-building plants of the ministry continued to produce houses of discarded types (1).

A number of plants have been delivering semifinished products under the name of prefabricated houses, and the quality of these houses is often very low. Parts are made of poor material, inadequately finished, and have to be adjusted at the time the house is assembled. Different parts of prefabricated houses do not arrive at their destination at the same time; there have been instances when houses were received by building administrations in January and the missing doors and windows did not arrive until May. In another instance, parts were delivered in December 1948 and the specifications for assembling them followed in March 1949. Such instances often occur at the Guty, Kletnya, Penkovskiy and Sel'tso housebuilding enterprises of the Ministry of Construction Materials Industry USSR.

Justified complaints have been received from various parts of the country.

The ministries and departments producing prefabricated houses are well aware of the poor quality of their products. Ginzburg, Minister of Construction Materials Industry USSK, issued a number of orders condemning the unsatisfactory quality of prefabricated houses and demanding improvements. However, very little has been done to improve the situation (2).

Enterprises of Glavstandartdom (Main Administration of Standard Housing Construction) have been producing until recently only one type of eight-apertment house, "K-8-46," which is very incomplete in design and architecture (3). The K-8-46 house requires highly skilled workers for the assembly process, which involves too much manual labor. The assembly of parts requires an excessive quantity of nails and other materials. One of the great shortcomings of the type K-8-46 house is the lack of complete assembled sections. Most of the parts are delivered in various lengths, which do not correspond to the planned dimensions. This makes assembling very difficult (1).

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In 1949, mass production of one-apartment, Type K-8-47, paneled-framework houses was begun. In 1959, Glavstandartdom intends to produce only three types of houses: an eight-apartment house, and individual houses with two or three roms. However, the designs for the individual houses and apartment houses, and the technical production process are not coordinated. The simultaneous production of these houses at one plant will present serious problems, as has been the case in the past (3).

Planned Improvements

On 1 November 1949, enterprises of standard housing construction must begin mass production of eight-apartment framework houses of an improved type, K-8-49. Houses of Type K-8-46 will be taken off production.

Preparations for conversion to the new type of houses are now in progress in plants and combines. The production area in a number of plants is being expanded. However, in spite of the short time left, many enterprises are very slow in mastering the new technology. The first experimental houses were to be built by all plants during September. Of 21 enterprises of Glavstandartdom only three have done this, the Dyat'kovo Plant and the Umet and Karacharovskiy combines. Such enterprises as the Altukhovskiy, Brasovo, Guty, Inza, Sel'tae, and Ugranskiy plants had not even started production of parts for the new houses. Only in Cotober, Just before the change-over to the new type of production was to go into effect, was preparatory work begun.

The Main Administration was to organize a central planning and designing bureau to render technical assistance to enterprises in mastering the new production. This bureau is still in the process of organization. The plants also lack essential materials. The Division of Technical Supply of Glavstandartdom is slow in delivering to the plants wire and band iron for the shipping of construction parts.

A number of enterprises, including the Altukhovskiy and Poklevskiy plants and the Sel'tso Combine, have gained a poor reputation in the past for producing low-quality products. These enterprises have not taken any steps to organize the production of high-quality parts for the K-8-49 units.

K-8-49 houses are to be built with mineral insulating material. However, the quality of the mineral felt supplied by "Soyuzshlak" Trust is still unsatisfactory. The felt has low mechanical resistance and high weight by volume. Due to the lack of good insulation material, delivery of the new houses may be retarded (4).

The demand for individual houses is constantly growing with improvement of living standards in the Soviet Union. A special wase of the Presidium of the Supreme Soviet USSR, dated 26 August 1948, confirmed the right of individual citizens to purchase and build dwellings, as well as to acquire plots of land for this purpose (3).

Experiments in New Types of Houses and Materials

Construction of a new type of prefabricated wooden house in Zelenogorsk, Leningrad Oblast, is nearing completion. The walls of this two-story building consist of double panels. The interior panel walls facing each other are covered with thin sheets of aluminum foil, which is almost impenetrable by heat rays and therefore preserves the heat inside the building. The entire wall, including the hollow space, is 10 centimeters wide. A building of this type will be much warmer than a solid stone building. Instead of plastering, the building will be covered with plastic material. This experimental construction is supervised by the Leningrad Affiliate of the Academy of Architecture (5).

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Construction of wooden prefabricated houses in timberless regions has met with great difficulties. In such regions, new building materials have to be found on the basis of local natural resources.

The Scientific Engineering Technical Society (NITO) of Builders and the Ministry of Housing and Civilian Construction Moldavian SSR have studied the possibility of using "SK," a new construction material, as a basic substitute for timber in the production of sectional parts. The new "SK" material, suggested by Engineers V. A. Sythik and V. A. Koshelev, is a binding gypsum material, saturated with dry distillation products of tar-containing substances and having a fibrous foundation. The raw materials for "SK" production are gypsum stone (a hydrate of calcium sulfate) and tar-containing substances.

"SK" products can be sawed, cut, planed, polished, and painted; they can be mailed together easily. "SK" material is suitable for making plates for facing exterior and interior walls, wall blocks, boards for window sills, and other building parts. "SK" material is waterproof and frost-resistant; it has a water-absorbency of 20 to 25 percent, and a coefficient of heat conductivity of 0.30.

The cost of such a house is much lower than that of a building made of stone, brick, or timber. Assembly of perts does not require highly skilled labor. The amount of timber necessary for one house is only 16 cubic meters. "SK" panels can also be used in the construction of multistoried buildings (6)

Moldavian builders have constructed several experimental houses of "SK" material. However, these houses still have a number of shortcomings, such as insufficient panel strength, which make it doubtful that they will be very durable. The amount of timber needed is comparatively great. "SK" material is still in an experimental stage and considerable improvement is necessary. Therefore, builders should be warned against using this material on a wide scale until it has been further tested and finally approved (7).

Construction of new house-building combines lage

Glavstandartdom is building two large combines in the Urals, at Turinak and Yushala. However, construction is progressing very slowly. Only 54.8 percent of the 10-month plan for construction of the Turinak House-Building Combine has been completed. During this period, not one square meter of living area has been built. Due to the lack of living quarters, there is a great shortage of workers. Construction is done by old-fashioned labor-consuming methods, there is no machinery, and labor productivity is low. Under these circumstances it is not surprising that even the construction of temporary quarters is lagging. The more important projects, including the sawmill and the heat and power plant, have not even been started. Nothing has been done to build a railroad branch line, without which normal delivery of materials is impossible.

The situation is not much better at the Yushala House-Building Combine. Only 58.1 percent of the 10-month construction plan has been completed. Glavstandartdom has not yet supplied a construction plan for a head and power plant, although there are sufficient workers to handle this part of the project. Representatives of the Main Administration are rarely seen at these Ural construction projects (8).

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